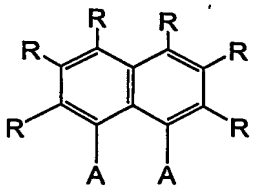
We claim:

1. A compound represented by formula I:



I

wherein

R represents independently for each occurrence H, alkyl, aryl, aralkyl, or alkenyl; and

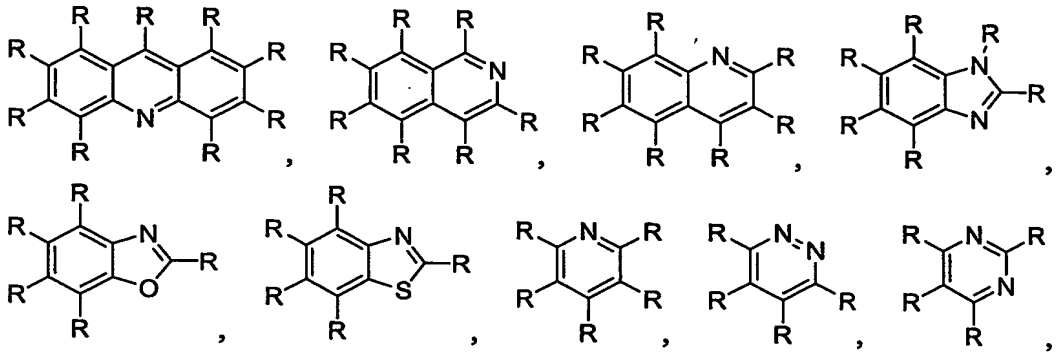
A represents independently for each occurrence aryl or heteroaryl.

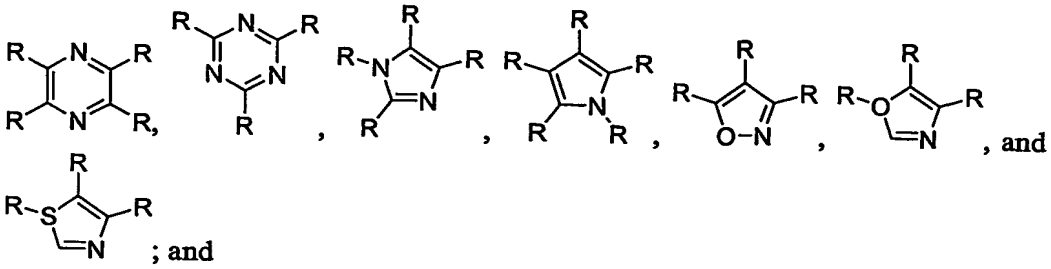
2. The compound of claim 1, wherein R represents independently for each occurrence H or alkyl.

3. The compound of claim 1, wherein A is heteroaryl.

4. The compound of claim 1, wherein A is heteroaryl, and R represents independently for each occurrence H or alkyl.

5. The compound of claim 1, wherein A is selected from the group consisting of:

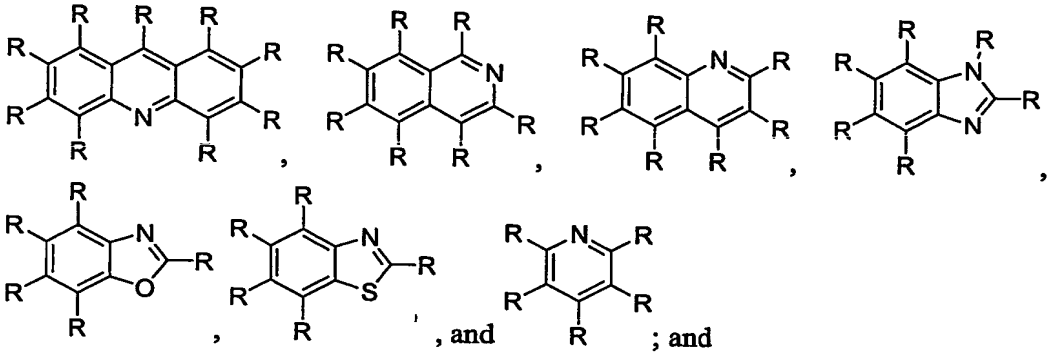




; and

R represents independently for each occurrence H, alkyl, aryl, or a bond to the nathphyl ring of the compound represented by formula I.

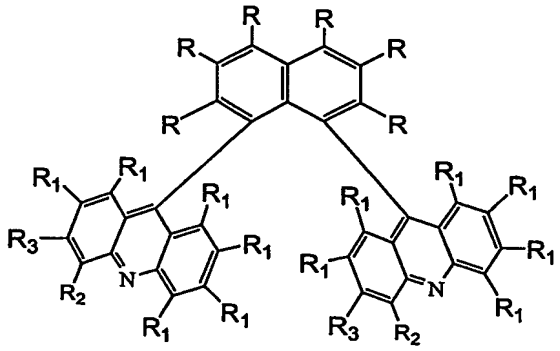
6. The compound of claim 1, wherein A is selected from the group consisting of:



; and

R represents independently for each occurrence H, alkyl, aryl, or a bond to the nathphyl ring of the compound represented by formula I.

7. A compound represented by formula II:



II

wherein

R, R_1, R_2, and R_3 represent independently for each occurrence H, alkyl, aryl, aralkyl, or alkenyl.

8. The compound of claim 7, wherein R represents independently for each occurrence H or alkyl.

9. The compound of claim 7, wherein R represents independently for each occurrence H.

10. The compound of claim 7, wherein R_1 represents independently for each occurrence H or alkyl.

11. The compound of claim 7, wherein R_1 represents independently for each occurrence H.

12. The compound of claim 7, wherein R_2 represents independently for each occurrence H, alkyl, or aryl.

13. The compound of claim 7, wherein R_2 represents independently for each occurrence alkyl.

14. The compound of claim 7, wherein R_2 represents independently for each occurrence methyl, ethyl, propyl, isopropyl, butyl, isobutyl, sec-butyl, or pentyl.

15. The compound of claim 7, wherein R_2 represents independently for each occurrence methyl or isopropyl.

16. The compound of claim 7, wherein R_3 represents independently for each occurrence H, alkyl, or aryl.

17. The compound of claim 7, wherein R_3 represents independently for each occurrence aryl.

18. The compound of claim 7, wherein R_3 represents independently for each occurrence an optionally subsituted phenyl group.

19. The compound of claim 7, wherein R_3 represents independently for each occurrence 3,5-dimethylphenyl.

20. The compound of claim 7, wherein R is H, R_1 is H, R_3 is H, and R_2 is alkyl.

21. The compound of claim 7, wherein R is H, R_1 is H, R_3 is H, and R_2 is methyl, ethyl, propyl, isopropyl, butyl, isobutyl, sec-butyl, or pentyl.

22. The compound of claim 7, wherein R is H, R_1 is H, R_3 is H, and R_2 is methyl.

23. The compound of claim 7, wherein R is H, R_1 is H, R_3 is H, and R_2 is isopropyl.

24. The compound of claim 7, wherein R is H, R_1 is H, R_2 is H, and R_3 represents independently for each occurrence aryl.

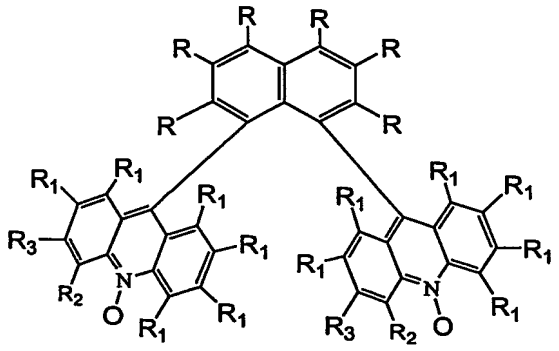
25. The compound of claim 7, wherein R is H, R_1 is H, R_2 is H, and R_3 represents independently for each occurrence an optionally substituted phenyl group.

26. The compound of claim 7, wherein R is H, R_1 is H, R_2 is H, and R_3 is 3,5-dimethylphenyl.

27. The compound of claim 7, wherein said compound is a chiral.

28. The compound of claim 7, wherein said compound is a single diastereomer.

29. A compound represented by formula **III**:



III

wherein

R, R_1, R_2, and R_3 represent independently for each occurrence H, alkyl, aryl, aralkyl, or alkenyl.

30. The compound of claim 29, wherein R represents independently for each occurrence H or alkyl.

31. The compound of claim 29, wherein R represents independently for each occurrence H.

32. The compound of claim 29, wherein R_1 represents independently for each occurrence H or alkyl.

33. The compound of claim 29, wherein R_1 represents independently for each occurrence H.

34. The compound of claim 29, wherein R_2 represents independently for each occurrence H, alkyl, or aryl.

35. The compound of claim 29, wherein R_2 represents independently for each occurrence alkyl.

36. The compound of claim 29, wherein R_2 represents independently for each occurrence methyl, ethyl, propyl, isopropyl, butyl, isobutyl, sec-butyl, or pentyl.

37. The compound of claim 29, wherein R_3 represents independently for each occurrence H, alkyl, or aryl.

38. The compound of claim 29, wherein R_3 represents independently for each occurrence aryl.

39. The compound of claim 29, wherein R_3 represents independently for each occurrence an optionally subsituted phenyl group.

40. The compound of claim 29, wherein R_3 represents independently for each occurrence 3,5-dimethylphenyl.

41. The compound of claim 29, wherein R is H, R_1 is H, R_3 is H, and R_2 is alkyl.

42. The compound of claim 29, wherein R is H, R_1 is H, R_3 is H, and R_2 is methyl, ethyl, propyl, isopropyl, butyl, isobutyl, sec-butyl, or pentyl.

43. The compound of claim 29, wherein R is H, R_1 is H, R_3 is H, and R_2 is methyl.

44. The compound of claim 29, wherein R is H, R_1 is H, R_3 is H, and R_2 is isopropyl.

45. The compound of claim 29, wherein R is H, R_1 is H, R_2 is H, and R_3 represents independently for each occurrence aryl.

46. The compound of claim 29, wherein R is H, R_1 is H, R_2 is H, and R_3 represents independently for each occurrence an optionally substituted phenyl group.

47. The compound of claim 29, wherein R is H, R_1 is H, R_2 is H, and R_3 is 3,5-dimethylphenyl.

48. The compound of claim 29, wherein said compound is a single enantiomer.

49. A method of detecting and quantifying an analyte in a sample, comprising the steps of:

contacting a sample optionally comprising an analyte with a compound of claim 7; measuring the fluorescence of said compound of claim 7 in said sample; and comparing said fluoresence measurement to the fluoresence of said compound of claim 7 in the absence of said sample.

50. The method of claim 49, wherein the analyte is a cation.

51. The method of claim 49, wherein the analyte is a alkali, alkaline earth, or transition metal ion.

52. The method of claim 49, wherein the analyte is a alkali or alkaline earth metal ion.

53. The method of claim 49, wherein the analyte is a lithium, sodium, potassium, magnesium, calcium, or strontium metal ion.

54. The method of claim 49, wherein the analyte is a sodium, potassium, or calcium metal ion.

55. The method of claim 49, wherein the analyte is a transition metal ion.

56. The method of claim 49, wherein the analyte is a copper, iron, nickel, manganese, cobalt, chromium, vanadium, titanium, zirconium, rhodium, palladium, silver, cadmium, mercury, gold, platinum, or hafnium ion.

57. The method of claim 49, wherein the analyte is a copper, iron, nickel, or manganese ion.

58. The method of claim 49, wherein the analyte is a copper ion.

59. The method of claim 49, wherein the analyte is a Cu^{2+}.

60. A method of detecting and quantifying an analyte in a sample, comprising the steps of:

contacting a sample optionally comprising an analyte with a compound of claim 29; measuring the fluorescence of said compound of claim 29 in said sample; and comparing said fluoresence measurement to the fluoresence of said compound of claim 29 in the absence of said sample.

61. The method of claim 60, wherein the analyte is a compound that comprises a hydrogen atom capable of participating in a hydrogen bond.

62. The method of claim 60, wherein the analyte is a compound that comprises a hydroxyl, carboxylic acid, amine, amide, thiol, or percarboxylic acid functional group.

63. The method of claim 60, wherein the analyte is a compound that comprises a hydroxyl, carboxylic acid, or amine functional group.

64. The method of claim 60, wherein the analyte is a compound that comprises a hydroxyl functional group.

65. The method of claim 60, wherein the analyte is a compound that comprises a carboxylic acid functional group.

66. The method of claim 60, wherein the analyte is a chiral compound that comprises a hydrogen atom capable of participating in a hydrogen bond.

67. The method of claim 60, wherein the analyte is a chiral compound that comprises a hydroxyl, carboxylic acid, amine, amide, thiol, or percarboxylic acid functional group.

68. The method of claim 60, wherein the analyte is a chiral compound that comprises a hydroxyl, carboxylic acid, or amine functional group.

69. The method of claim 60, wherein the analyte is a chiral compound that comprises a hydroxyl functional group.

70. The method of claim 60, wherein the analyte is a chiral compound that comprises a carboxylic acid functional group.

71. A method of detecting and quantifying an analyte in a sample, comprising the steps of:

contacting a sample optionally comprising an analyte with a compound of claim 7; measuring the fluorescence of said compound of claim 7 in said sample; and comparing said fluoresence measurement to the fluoresence of said compound of claim 7 in the absence of said sample.

72. The method of claim 71, wherein the analyte is a compound that comprises a hydrogen atom capable of participating in a hydrogen bond.

73. The method of claim 71, wherein the analyte is a compound that comprises a hydroxyl, carboxylic acid, amine, amide, thiol, or percarboxylic acid functional group.

74. The method of claim 71, wherein the analyte is a compound that comprises a hydroxyl, carboxylic acid, or amine functional group.

75. The method of claim 71, wherein the analyte is a compound that comprises a hydroxyl functional group.

76. The method of claim 71, wherein the analyte is a compound that comprises a carboxylic acid functional group.

77. The method of claim 71, wherein the analyte is a chiral compound that comprises a hydrogen atom capable of participating in a hydrogen bond.

78. The method of claim 71, wherein the analyte is a chiral compound that comprises a hydroxyl, carboxylic acid, amine, amide, thiol, or percarboxylic acid functional group.

79. The method of claim 71, wherein the analyte is a chiral compound that comprises a hydroxyl, carboxylic acid, or amine functional group.

80. The method of claim 71, wherein the analyte is a chiral compound that comprises a hydroxyl functional group.

81. The method of claim 71, wherein the analyte is a chiral compound that comprises a carboxylic acid functional group.

82. The method of claims 60-70, wherein R is H, R_1 is H, R_2 is H, and R_3 represents independently for each occurrence aryl.

83. The method of claim 71-81, wherein R is H, R_1 is H, R_2 is H, and R_3 represents independently for each occurrence aryl.